

REPORTED MERCURY ON SANATH

455909 - R8 SDMS

382050

455909

ARAPAHOE COMMUNITY COLLEGE
M 317 CHEMICAL STORE ROOM
2500 W. COLLEGE DRIVE
LITTLETON
CO 80160-9002

FILE PLAN
2.11.03

METROM INFORMATION

4800 E. DRY CREEK
LITTLETON
CO 80122

HYDROGEN CONSULTANTS, INC.

12420 N. DUMONT WAY
LITTLETON
CO 80125

HYDROGEN CONSULTANTS, INC.

12420 N. DUMONT WAY
LITTLETON
CO 80125

MARCY GULCH WASTEWATER

8700 S. SANTA FE
H.R.
CO 80126

Windermere Bldg.-Dr. MARK

5590 S. Windermere St.
Littleton
Co 80120

Windermere Bldg.-Dr. THOMAS

5590 S. Windermere St.
Littleton
Co 80120

MANATHON OIL
DRY CREEK & BROADWAY

Topic: MERCURY

the TLV or greater, or significant skin contact), the following are recommended before beginning work and at regular times after that:

- * Exam of the nervous system (including handwriting test to detect early hand tremor).
- * Urine Mercury level (usually less than 0.02 mg/Liter).
- * Kidney function tests.

If symptoms develop or overexposure is suspected, the following may be useful:

- * Consider chest x-ray after acute overexposure.
- * Evaluation by a qualified allergist, including careful exposure history and special testing, may help diagnose skin allergy.

Any evaluation should include a careful history of past and present symptoms with an exam. Medical tests that look for damage already done are not a substitute for controlling exposure.

Request copies of your medical testing. You have a legal right to this information under OSHA 1910.20.

WORKPLACE CONTROLS AND PRACTICES

Unless a less toxic chemical can be substituted for a hazardous substance, ENGINEERING CONTROLS are the most effective way of reducing exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Using respirators or protective equipment is less effective than the controls mentioned above, but is sometimes necessary.

In evaluating the controls present in your workplace, consider: (1) how hazardous the substance is, (2) how much of the substance is released into the workplace and (3) whether harmful skin or eye contact could occur. Special controls should be in place for highly toxic chemicals or when significant skin, eye, or breathing exposures are possible.

In addition, the following controls are recommended:

- * Vigorous periodic cleaning of all work surfaces.
- * Where possible, automatically pump liquid Mercury from drums or other storage containers to process containers.
- * Specific engineering controls are recommended for this chemical by NIOSH. Refer to the NIOSH criteria document: Occupational Exposure to Mercury #73-11024.

Good WORK PRACTICES can help to reduce hazardous exposures. The following work practices are recommended:

- * Workers whose clothing has been contaminated by Mercury should change into clean clothing promptly.
- * Do not take contaminated work clothes home. Family members could be exposed.

Topic: MERCURY

- * Contaminated work clothes should be laundered by individuals who have been informed of the hazards of exposure to Mercury.
- * Eye wash fountains should be provided in the immediate work area for emergency use.
- * If there is the possibility of skin exposure, emergency shower facilities should be provided.
- * On skin contact with Mercury, immediately wash or shower to remove the chemical. At the end of the workshift, wash any areas of the body that may have contacted Mercury, whether or not known skin contact has occurred.
- * Do not eat, smoke, or drink where Mercury is handled, processed, or stored, since the chemical can be swallowed. Wash hands carefully before eating or smoking.
- * For clean-up use a specialized charcoal-filtered vacuum or suction pump to avoid generating Mercury vapor. Care should be taken not to disturb spilled material.

Topic: MERCURY

Consumption Patterns:

1. MFR OF ELECTRICAL APPARATUS, 56%; MFR OF CHLORINE & CAUSTIC SODA (REPLENISHMENT OF MERCURY LOST IN PROCESS & NOT RECYCLED), 13%; MFR OF INDUSTRIAL & CONTROL INSTRUMENTS, 7%; DENTAL AMALGAMS, 2%; OTHER USES (MOSTLY AS CHEM INT, ALSO INCLUDES OTHER AMALGAMS & MERCURY USED IN PRODN OF NEW CHLORINE/CAUSTIC SODA PLANTS), 22% (1982) **PEER REVIEWED** [SRI]
2. Electrical products such as dry-cell batteries, fluorescent light bulbs, switches, and other control equipment account for 50% of mercury used. Mercury is also used in substantial quantities in electrolytic preparation of chlorine and caustic soda (chlor-alkali industry, mercury cell process; 25%), paint manufacture (12%), and dental preparations (3%). Lesser quantities are used in industrial catalyst manufacture (2%), pesticides manufacture (1%), general laboratory use (1%), and pharmaceuticals (0.1%). **PEER REVIEWED** [Kayser, R., D. Sterling, D. Viviani (eds.). Intermedia Priority Pollutant Guidance Documents. Washington, DC: U.S.Environmental Protection Agency, July 1982.,p. 3-1]
3. Electrical, 56%; electrolytic production of chlorine and caustic soda, 12%; paints, 10%; industrial and control instruments, 6%; and other, 16% (1986) **PEER REVIEWED** [BUREAU OF MINES. MINERAL COMMODITY SUMMARIES 1987 p.100]

U.S. Production:

Topic: MERCURY

Major Uses:

1. IN BAROMETERS, THERMOMETERS, HYDROMETERS, PYROMETERS; IN MERCURY ARC LAMPS PRODUCING ULTRAVIOLET RAYS, IN SWITCHES, FLUORESCENT LAMPS; IN MERCURY BOILERS; MFR ALL MERCURY SALTS, MIRRORS; CATALYST IN OXIDN OF ORG CMPD; EXTRACTING GOLD & SILVER FROM ORES; ELECTRIC RECTIFIERS; MAKING MERCURY FULMINATE; FOR MILLON'S REAGENT; AS CATHODE IN ELECTROLYSIS, ELECTROANALYSIS **PEER REVIEWED** [The Merck Index. 10th ed. Rahway, New Jersey: Merck Co., Inc., 1983. 843
2. PULP & PAPER MFR **PEER REVIEWED** [National Research Council. Drinking Water & Health Volume 1. Washington, DC: National Academy Press, 1977. 271
3. COMPONENT OF BATTERIES (EG, ZINC-CARBON & MERCURY CELLS), INDUSTRIAL & CONTROL INSTRUMENTS (EG, METERS), & AMALGAMS (EG, FOR DENTAL PREPARATIONS); AGENT IN MFR OF WIRE & SWITCHING DEVICES (EG, OSCILLATORS); CATHODE IN ELECTROLYTIC MFR OF CHLORINE & CAUSTIC SODA; CATALYST FOR URETHANE & EPOXY RESINS; LABORATORY REAGENT; LUBRICANT (EG, IN TURBINES) **PEER REVIEWED** [SRI
4. METALLIC MERCURY (QUICKSILVER) HAS BEEN EMPLOYED IN INDIA TO FUMIGATE & PROTECT GRAIN IN CLOSED CONTAINERS FROM ... INSECT INFESTATION. **PEER REVIEWED** [Farm Chemicals Handbook 1983. Willoughby, Ohio: Meister Publishing Co., 1983.,p. C-150
5. Used in ... pharmaceuticals, agricultural chemicals, antifouling paints, /SRP: as a wet chemistry method/, and many other uses. **PEER REVIEWED** [The Merck Index. 10th ed. Rahway, New Jersey: Merck Co., Inc., 1983. 843

Consumption Patterns:

Topic: MERCURY

HEALTH HAZARDS

Personal protective equipment: Avoid contact of liquid with skin. For vapor use chemical cartridge (Hopcalite) respirator.

Symptoms following exposure: No immediate symptoms. As poisoning becomes established, slight muscular tremor, loss of appetite, nausea, and diarrhea are observed. Psychic, kidney, and cardiovascular disturbances may occur.

Treatment of exposure: Consult a doctor.

Threshold limit value: 0.05 ng/m(3)

Short term inhalation limits: Data not available

Toxicity by ingestion: No immediate toxicity

Late toxicity: Development of mercury poisoning

Vapor (gas) irritant characteristics: None

Liquid or solid irritant characteristics: None

Odor threshold: Not pertinent

IDLH value: 28 mg/m(3)

FIRE HAZARDS

Flash point: Not flammable

Flammable limits in air: Not flammable

Fire extinguishing agents: Not pertinent

Fire extinguishing agents NOT to be used: Not pertinent

Special hazards of combustion products: Not pertinent

Behavior in fire: Not flammable

Ignition temperature: Not flammable

Electrical hazard: Not pertinent

Burning rate: Not flammable

Adiabatic flame temperature: Data not available

Stoichiometric air to fuel ratio: Data not available

Flame temperature: Data not available

CHEMICAL REACTIVITY

Reactivity with water: No reaction

Reactivity with common materials: No reaction

Stability during transport: Stable

Neutralizing agents for acids and caustics: Not pertinent

Polymerization: Not pertinent

Inhibitor of polymerization: Not pertinent

Molar ratio (reactant to product): Data not available

Reactivity group: Data not available

WATER POLLUTION

Aquatic toxicity: 0.5-1 ppm/48 hr/caragius ardiu/TLM/fresh water
0.29 ppm/48 hr/marine fish/TLM/salt water

Waterfowl toxicity: Data not available

Biological oxygen demand (BOD): None

Food chain concentration potential: Mercury concentrates in liver and kidneys of ducks and geese to levels above FDA limit of 0.5 ppm. Muscle tissue usually well below the limit.

SHIPPING INFORMATION

Topic: MERCURY

Grades of purity: Pure
Storage temperature: Ambient
Inert atmosphere: No requirement
Venting: Open

HAZARD CLASSIFICATIONS

Code of federal regulations: ORM-B
NAS hazard rating for bulk water transportation: Not listed
NFPA hazard classification: Not listed

PHYSICAL AND CHEMICAL PROPERTIES

Physical state at 15 degrees C. and 1 ATM: Liquid
Molecular weight: 200.59
Boiling point at 1 ATM: 675 degrees F = 357 degrees C = 630 degrees K
Freezing point: -38.0 degrees F = -38.9 degrees C = 234.3 degrees K
Critical temperature: 2664 degrees F = 1462 degrees C = 1735 degrees K
Critical pressure: 23,300 psia = 1587 atm = 160.8 MN/m(2)
Specific gravity: 13.55 at 20 degrees C (liquid)
Liquid surface tension: 470 dynes/cm = 0.470 N/m at 20 degrees C
Liquid water interfacial tension: 375 dynes/cm = 0.375 N/m at 20 degrees C
Vapor (gas) specific gravity: Not pertinent
Ratio of specific heats of vapor (gas): Not pertinent
Latent heat of vaporization: Not pertinent
Heat of combustion: Not pertinent
Heat of decomposition: Not pertinent
Heat of solution: Not pertinent
Heat of polymerization: Not pertinent
Heat of fusion: 2.7 cal/g
Limiting value: Data not available
REID vapor pressure: Data not available

Handl'd
89/ 5640

Topic: MERCURY

3.0 HEALTH HAZARD INFORMATION

Acute Health Effects

The following acute (short-term) health effects may occur immediately or shortly after exposure to Mercury:

- * Mercury can irritate and burn the skin and eyes with possible permanent damage.
- * Exposure to high levels of Mercury vapor can irritate the lungs, causing cough, chest pain, and shortness of breath.

Chronic Health Effects

The following chronic (long-term) health effects can occur at some time after exposure to Mercury and can last for months or years:

Cancer Hazard

- * According to the information presently available to the New Jersey Department of Health, Mercury has been tested and has not been shown to cause cancer in animals.

Reproductive Hazard

- * There is limited evidence that Mercury may cause an increase in spontaneous abortions in exposed women.
- * Organic Mercury substances (organic substances are those which contain carbon) have been identified as human teratogens. While inorganic Mercury substances (those without carbon) have not been shown to be human teratogens, they still should be handled with caution as they may cause reproductive problems in males and females.

Other Long-Term Effects

- * Repeated low exposure or a very high single exposure can cause Mercury poisoning. Symptoms include tremors (shaking), trouble remembering and concentrating, gum problems, increased salivation, loss of appetite and weight, and changes in mood and personality. These can be severe and cause hallucinating and psychosis.
- * Repeated exposure (usually more than five years) can cause clouding of the eyes.
- * Mercury may cause a skin allergy. If allergy develops, very low future exposures can cause itching and a skin rash. Repeated contact may cause a gray skin color.
- * Exposure can cause kidney damage.
- * Mercury may lower sex drive.

MEDICAL

Medical Testing

For those with frequent or potentially high exposure (half

Casual corner
Red Shorts

Vic sur

Notations - Blouse

Black pants

Blue denim shirt - Stalen

Russ. Athlete - gold

01/24 Sketch

King's Land Tables

Beas

~~at~~ Bills T-shirts

212 - white trace

Grey sketch

Black sketch

Purple shirt

Cas. white shirt

955 or 5.5.

green, illini

red Hughes

Navy Tank

white golf chair

Purple sketch

Blue Russell Athl.

White tank

Am. 1/16 Ave

Haney
Grey T shirt

Black

Blue zone jeans

gold workday

Towel

(2) Green Bath

towels - green

2 blue

Gold towels

(2) Navy towels

del. grey/white
Sahara

Purple Shorts

Green tank

green T

Stalen: shirt -

white Blue.

Green - Clay Bank

Blue Tank

Black sweats

Black T

Black sink shirt

INTER-OFFICE MEMO

TO _____

DATE _____

Front door $\frac{0700}{.118}$

Bed (outside) $\frac{0900}{.006}$ $\frac{1100}{.011}$

Kids room $.145$
 $\frac{0930}{.014}$ $\frac{0945}{.026}$

Hall $\frac{0915}{0.0}$

Kids dresser $.254$

Laundry Room $\frac{0945}{0.0}$

Parents carpet $.045$
 $\frac{0700}{0.0}$

Box From Kids Room $\frac{1000}{.064}$

Kids clothes $\frac{0800}{1.678}$

Shower Curtain $\frac{1120}{.145}$

Sink $\frac{1120}{.026}$

Parents clothes $\frac{0830}{.064}$
 $\frac{0900}{.01}$

Closet clothes $.214$

Parents bedding $\frac{0430}{.246}$

Kids Room Outside
 $\frac{0730}{.006}$ $\frac{0830}{.011}$

Parents Room outside
 $\frac{0730}{N.D.}$ $\frac{0830}{0.0}$



GREIF BROS. CONTAINERS

BY _____

Casual corner
Red Shorts

Vic sur

Notations - Blouse

Black pants

Blue denim shirt - Stalk

Russ. Athlete - gold

grey stretch

Krugov hand Tables

Beas

~~off~~ Bills T-shirts

212 - white T-shirt

grey stretch

black stretch

Purple shirt

Cas. white shirt

955025 S.S.

green, illiad

Red Hugs

Navy Tank

white gold chain

Purple stretch

Blue Russell Athl.

White Tank

11/8 grey

stretch

Black wrap Skirt

black tank

grey shorts

Hanna

grey T shirt

black

Blue zone jeans

gold waist bag

Towel

(2) green bath

towels - green

2 blue

gold towels

(2) Navy towels

red. grey/white
Sahara

Purple Shorts

green tank

green T

Stolen: shirt -

white Blue

green - clay bank

blue tank

black sweats

black T

black sink shorts

Purple T

black lace

Purple gym

HPT 16-103

5-7-96

Good

Cut + Dr - Blue/Brown Stripes

Union Bay Black pants

Cap - green pants

Arms -

Gold - maneuvers

Green - Starter pull over

Expend - EAM

~~Blue~~ Blue Nile

Wrestling Singing -

Blue glove

Orange 7 shirt

Dorches

Socks

Wrestling shoes